

Claims-20-
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1. ~~7.~~ A user-site reception system for receiving TV and/or audio and/or data signals transmitted from a base station, said system comprising:

means for receiving downstream signals transmitted from a base station;

means for generating upstream signals to be transmitted to said base station using a high-precision signal which can be transmitted from said base station as a reference, *said means for generating upstream signals further comprising: $\int \leftarrow \rightarrow \int$*

2. ~~8.~~ A user site reception system according to claim ¹~~7~~, wherein said system is a reception-interaction system for a LMDS system, said reception system further comprising:

means for command reception from a base station;

means for user interaction with said base station.

3. ~~9.~~ A system according to one of claims ¹~~7~~ or ²~~8~~, said system comprising:
means for exploiting the high-precision beacon signal, said mixer comprising:

frequency processing means for upconverting the upstreams, given by modulator IF outputs, without any influence of parasitic phase noise and drift generated by receiver located conversion LOs;

means for downconversion of downstreams;

means for suitable filtering of frequency bands.

~~10. A reception system according to one of claims 7 to 9, wherein said means for exploitation of a high-precision beacon signal comprises:~~

~~< means for downconverting said beacon signal using a first local oscillator frequency;~~

~~means for upstream modulation of said upstream signal onto said downconverted signal;~~

~~means for upconverting said upstream modulated downconverted signal using said first local oscillator frequency, which has been used for downconverting. >~~

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4. ~~11.~~ A reception system according to one of claims ~~7~~¹ to ~~10~~³, comprising:
 at least one upstream signals generating means according to one of claims ~~7~~¹ to ~~10~~³;
 means for processing of polarizations and frequency bands for up- and downstreams;
 means for connecting to an IF frequency level to be connected to an in-house distribution infrastructure;
 means for connecting to an RF frequency level to be connected to a radiator/receptor;
 means for power amplification.
5. ~~12.~~ A single user outdoor unit, comprising:
 at least one upstream signal generating means according to one of claims ~~7~~¹ to ~~11~~⁴;
 switching means for switching between frequency bands and polarizations for downstreams and between polarizations for upstreams;
 means for connecting to a IF frequency level to be connected to an indoor unit.
6. ~~13.~~ A unit according to claim ~~12~~⁵, further comprising means for remote control (e.g. DiSEqC™) for functions including at least power control and emergency shutoff.
7. ~~14.~~ An indoor unit to be connected to an outdoor unit according to claim ~~12~~⁵ or ~~13~~⁶ or to an in-house distribution component, said indoor unit comprising:
 receiving means for the reception of downstream signals;
 demodulation means for demodulating the downstream signals;
 modulation means for generating an upstream carrier based on a high-position beacon signal transmitted from a base station as a reference signal for the generation of said upstream carrier;
 control means for generating switching commands.

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8. ~~15~~. An indoor unit according to claim ~~14~~⁷, further comprising one of the following:

means for exploiting base station commands to allocate upstream carriers and/or power;

means to control or shut off the upstream carrier power.

9. ~~16~~. An indoor unit according to one of claims ~~14~~⁷ or ~~15~~⁸, further comprising:
an in-house distribution component, comprising:
switching means for switching the connection between individual user indoor units and the outdoor unit.

10. ~~17~~. An indoor unit according to claim ~~16~~⁹, wherein
said switching means comprises means for bidirectional switching between the user indoor units and the outdoor unit.

11. ~~18~~. An indoor unit according to one of claims ~~16~~⁹ or ~~17~~¹⁰, wherein
said in-house distribution component further comprises:
means for controlling the switching in response to signals received from said indoor unit;
means for connecting to an IF frequency level to be connected to said indoor unit.

12. A system according to one of claims 1 to 11,
further comprising:

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Claims

^a
1. ~~A~~ base station for broadcasting or re-broadcasting of TV and/or audio and/or data signals, said station comprising:

means for transmitting downstream signals from said base station to at least one user terminal;

means for receiving upstream signals transmitted from said at least one user terminal;

means for transmitting a high-precision beacon signal as reference signal for the generation of said upstream signals.

13. ^{system} 2. ~~A base station~~ according to claim 1⁷², wherein said base station forms a part of an LMDS provider-site distribution system, and wherein said base station of said system further comprises one or a combination of the following:

means for baseband processing, modulation, and power combination of downstream carriers and/or

means for block conversion and power amplification of downstream carriers as well as demodulation of arbitrary numbers of upstream carriers;

means for station management;

means for controlling interactively communication frequencies and power;

means for communication with adjacent cells and a remote service provider; means for communication with other networks like satellite and/or cable.

14. ^{system} 3. ~~A base station~~ according to one of the preceding claims, said base station comprising:

an upstream reception system with a stack of single demodulators comprising:

means for low noise amplification;

means for downconverting from RF to a first IF level;

means for power splitting;

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a downconversion mixer bank for individual upstream carrier downconversion;

means for generating individual LO frequencies;

means for filtering;

a demodulator bank;

means for baseband processing to exploit the incoming demodulated upstream data.

15. ~~4.~~ A base station according to claim ~~3~~⁷⁴, further comprising means for arbitrarily configuring the demodulation mode.

16. ~~5.~~ A base station according to one of claims ~~1~~¹² or ~~2~~¹³, further comprising:
an upstream reception system with a multicarrier demodulator system comprising:

means for low noise amplification;

means for downconversion from RF to a first IF level;

means for quadrature downconversion;

means for sampling and for A/D-conversion for subsequent signal processing;

means for analytical multicarrier demodulation signal processing;

means for baseband processing.

17. ~~6.~~ A base station according to one of claims ~~1~~¹² or ~~2~~¹³, said base station comprising:

an upstream reception system with a FFT demodulation system comprising:

means for low noise amplification;

means for downconversion from RF to a first IF level;

means for quadrature downconversion;

means for sampling and for A/D-conversion for subsequent signal processing;

means for analytical FFT signal processing;

means for baseband processing.